

WHAT IS CLAIMED IS:

1. A host cell comprising one or more polynucleotides, wherein said one or more polynucleotides encode a protein of interest and a genetic element capable of reducing a protease activity in a host cell or fluids, wherein said one or more
5 polynucleotides is capable of expressing said protein of interest in the host cell, wherein said protease activity is capable of cleaving said protein of interest, wherein said protein of interest is non-native to the host cell.
2. The host cell according to Claim 1, wherein said genetic element (1)
10 expresses an antisense or sense element capable of reducing expression of a protein with said protease activity in said host cell, (2) expresses a ribozyme capable of reducing expression of a protein with said protease activity in said host cell, (3) induces expression of a protease inhibitor native to said host cell in said host cell, or (4) expresses a protease inhibitor in said host cell.
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3. The host cell according to Claim 2, wherein said genetic element expresses an antisense or sense element capable of reducing expression of a protein with said protease activity in said host cell.
- 20 4. The host cell according to Claim 3, wherein said antisense or sense element comprises a nucleotide sequence that is substantially similar to the antisense or sense nucleotide sequence of a protease.
5. The host cell according to Claim 4, wherein said antisense or sense
25 element comprises the antisense or sense nucleotide sequence of said protease.
6. The host cell according to Claim 5, wherein said host cell is a plant cell.
7. The host cell according to Claim 5, wherein said protease is native to said
30 host cell.

8. The host cell according to Claim 5, wherein said protease is a serine protease.
9. The host cell according to Claim 8, wherein said serine protease is a chymotrypsin-like serine protease or a subtilisin-like serine protease.
10. The host cell according to Claim 9, wherein said subtilisin-like serine protease is a Nicotianalysin protein and the host is a plant cell.
11. The host cell according to Claim 1, wherein said protein of interest is a protein not native to the host cell.
12. The host cell according to Claim 11, wherein said protein is a human protein.
13. The host cell according to Claim 12, wherein said human protein is human growth hormone.
14. The host cell according to Claim 1, wherein said first polynucleotide is non-native to said host cell.
15. The host cell according to Claim 14, wherein said polynucleotide encoding the protein of interest inserted into a viral vector.
16. The host cell according to Claim 15, wherein said viral vector is obtained from a RNA virus.
17. The host cell according to Claim 11, wherein said host cell is a plant cell.
18. The plant cell according to Claim 17, wherein said one or more polynucleotides is in a vector .

19. The plant cell according to Claim 17, wherein the polynucleotide encoding a protein of interest and/or the polynucleotide encoding a genetic element capable of reducing a protease activity is integrated into the plant genome .

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20. The host cell according to Claim 1, wherein said polynucleotide encoding the genetic element is inserted into a viral vector.

21. The host cell according to Claim 1, wherein said genetic element encodes a protease inhibitor.

22. The host cell according to Claim 21, wherein said protease inhibitor is aprotinin.

23. The host cell according to Claim 21, wherein said genetic element and said polynucleotide encoding a protein of interest are both inserted into a vector.

24. The plant cell according to Claim 23, wherein said polynucleotides encoding said genetic element and said protein of interest are fused together to produce a fused protein product.

25. The plant cell comprising the plant cell according to claim 6.

26. A plant comprising the plant cell according to Claim 17.

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27. A polynucleotide comprising a substantially similar or complementary sequence of at least a part of the coding sequence, or one or more fragments, of a Nicotianalysin protease which is not identical with another protease.

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28. A method of reducing the amount of a protein of interest cleaved by a hydrolase activity in a host cell, comprising the steps of:
- (a) introducing a polynucleotide into a host cell, wherein said polynucleotide comprises a genetic element capable of reducing a hydrolase activity in said host cell; and
 - 5 (b) expressing a protein of interest in said host cell, wherein said protein of interest is capable of expression in said host cell, wherein said protein of interest is capable of being cleaved by said hydrolase activity; whereby the amount of protein of interest cleaved by said hydrolase activity in said host cell is reduced compared to the amount of protein of interest cleaved by said hydrolase activity in another host cell in
 - 10 which said polynucleotide is not introduced.
29. The method of claim 28 wherein said protein of interest is heterologous to said host.
- 15 30. The method according to Claim 28, further comprising the step of isolating the protein of interest from said host cell or fluid.
31. The method according to claim 28 wherein said host cell is a plant cell.
- 20 32. The method of claim 29 wherein said polynucleotide is in a vector.
33. The method of claim 29 wherein said hydrolase is a protease.
34. A vector containing a genetic element capable of reducing protease
- 25 activity and a polynucleotide encoding a protein of interest.
35. A composition of purified Nicotianalysin having a specific activity greater than 100 units/mg protein.
- 30 36. The composition of claim 34 wherein Nicotianalysin is substantially isolated from other proteins and having an activity greater than 3000 units/mg protein.

37. A method for cleaving a polypeptide comprising contacting a composition containing the Nicotianalysin of claim 35 with a polypeptide substrate for a time and under conditions sufficient to cleave the polypeptide.